

*CJW*  
*Af.*

28. Application of the kit according to claim 14 to the preparation of bio-chips, by synthesis in situ or deposit of pre-synthesised oligonucleotides, to the screening of biological, chemical molecules, or on cells, to the preparation of drugs or to pharmaceutical tests or of immunological, biochemical or genetic screening.

REMARKS

Claims 4-7, 13-15 and 17-23 have been amended to eliminate multiple claim dependencies, and claims 24-28 have been added to correspond to the amended claims. This is done to save the fees for multiple dependent claims and not for any reason related to patentability. Entry of this amendment is respectfully requested.

Respectfully submitted,



S. Peter Ludwig  
Reg. No. 25,351  
Attorney for Applicant(s)

DARBY & DARBY P.C.  
805 Third Avenue  
New York, New York 10022  
212-527-7700



#9

## EXPRESS MAIL CERTIFICATE

Date 4/25/02 Label No. EW 028721586 - 4S

I hereby certify that, on the date indicated above, this paper or fee was deposited with the U.S. Postal Service & that it was addressed for delivery to the Assistant Commissioner for Patents, Washington, DC 20231 by "Express Mail Post Office to Addressee" service.

B.W. Lee  
Name (Print)B.W. Lee  
Signature

PLEASE CHARGE ANY DEFICIENCY UP TO \$300.00 OR CREDIT ANY EXCESS IN THE FEES DUE WITH THIS DOCUMENT TO OUR DEPOSIT ACCOUNT NO. 04-0100

Customer No.:



07278

PATENT TRADEMARK OFFICE

Docket No: 6670/0J501

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Moussa HOUMMADY

Serial No.: 09/882,308

Art Unit: N/A

Confirmation No.: 6861

Filed: June 15, 2001

Examiner: N/A

For: HIGH-PERFORMANCE SYSTEM FOR THE PARALLEL AND SELECTIVE DISPENSING OF MICRO-DROPLETS, TRANSPORTABLE CARTRIDGE AS WELL AS DISPENSING KIT, AND APPLICATIONS OF SUCH A SYSTEM

---

MARK-UP OF CLAIMS FOR PRELIMINARY AMENDMENT

Hon. Commissioner of  
Patents and Trademarks  
Washington, DC 20231

April 25, 2002

Sir:

IN THE CLAIMS:

Please amend claims 4-7, 13-15 and 17-23 as follows:

4. (Amended) Dispensing system of micro-droplets according to [any one of the previous claims] claim 1, wherein the membrane or the substrate has a multi-layered structure that integrates the micro-ducts tri-dimensionally in different layers, the micro-ducts then being coupled to the wells by connections perpendicular to the upper openings of the wells.

5. (Amended) Dispensing system of micro-droplets according to [any of the previous claims] claim 1, wherein the whole of the means for deforming is managed by a control unit programmable through a multiplexing network to trigger simultaneously or successively the suction or the ejection of identical or different reagents through the wells, by blocks of pre-selected wells or by certain pre-selected wells.

6. (Amended) Dispensing system of micro-droplets according to [any one of the previous claims] claim 1, wherein the material of the substrate or of the membrane is chosen among semiconducting materials, polysilicon, glass, silicon nitrides, ceramics, thermoplastic materials, elastomers, thick photosensitive resins, and electro-formed or electro-eroded metals.

7. (Amended) Dispensing system of micro-droplets according to claim 5 [or 6], wherein the etching of the substrate or of the membrane is chosen among chemical etching, RIE, D-RIE, photolithography, etching by electroerosion or electroforming (6),

moulding and polymerisation, laser cutting, ultrasounds, or the projection of abrasives.

13. (Amended) Dispensing cartridge comprising at least a dispensing system according to [any one of the previous claims] claim 1, pre-filled with reactants (51), and with titration plates (81) that can show micro-bowls (80) formed by micro-electronic type etching, by manufacturing, by moulding, and by thermoforming.

14. (Amended) Dispensing kit comprising at least a dispensing system according to [any one of claims 1 to 12] claim 1, equipped with at least one aspiration pump (8), and at least one titration plate (81), which can be pre-filled with reagents.

15. (Amended) Cartridge according to claim 13 [or kit according to claim 14], wherein the titration plate shows micro-bowls equipped with polarised electrodes, the cell reactivity test being optical or electrical.

17. (Amended) Application of the cartridge according to claim 13 [ or to the kit according to claim 14] to the preparation of bio-chips, by synthesis in situ or deposit of pre-synthesised oligonucleotides, to the screening of biological, chemical molecules, or on cells, to the preparation of drugs or to pharmaceutical tests or of immunological, biochemical or genetic screening.

18. (Amended) Application of the dispensing system according to [any one of the

claims 1 to 10] claim 1, to the percutaneous administration of drugs by iontophoresis consisting of an application system of a difference of potential suitable on a piezoelectric cell (70) for the administration of a calibrated quantity of at least one drug contained or formed in at least one well.

19. (Amended) Application to the screening of test cells in pharmacology of a dispensing system according to [any one of the claims 1 to 12] claim 1, wherein drugs are deposited on the cells contained in the micro-bowls (80) of a titration plate (81), equipped with polarised electrodes, the cell reactivity test being optical or electrical.

20. (Amended) Application according to [the previous] claim 19 where a potential difference of adapted value is applied between said electrodes in order to generate a polarisation in the cells and thus favour the therapeutic effect on the cells.

21. (Amended) Application of the dispensing system according to [any one of the claim 1 to 14] claim 1, to the selective filtration by fixation on the walls of the wells of a dispensing head for identical or different bio-cells or for the biochemical compounds by well or by block of wells.

22. (Amended) Application of the dispensing system according to [the previous] claim 21, where the dispensing head is integrated to the tip of the syringe.

23. (Amended) Application of the dispensing system according to [any one of the claims 1 to 14] claim 1, to the parallel or sequential feeding of the columns of mass spectrometer or of chromatographs.